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10/604,200

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Reiner Eschbach

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EXAMINER

ZHENG, JACKY X

ART UNIT

PAPER NUMBER

2625

NOTIFICATION DATE

DELIVERY MODE

04/30/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/604,200 | Applicant(s) ESCHBACH ET AL. | |
| | Examiner JACKY X. ZHENG | Art Unit 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14, 16, 18-21, 23, 25-29, 31, 33-37, 39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 16, 18-21, 23, 25-29, 31, 33-37, 39, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on September 3, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's amendments and remarks filed on February 5, 2008.
2. **Claims 1, 19, 27 and 35** have been amended.
3. **Claims 13, 15, 17, 22, 24, 30, 32, 38 and 40** have been cancelled.
4. **Claims 1-12, 14, 16, 18-21, 23, 25-29, 31, 33-37, 39 and 41-42** are currently pending.
5. The rejections under 35 U.S.C. §112, Second Paragraph, to claims 1-12, 14, 16, 18-21, 23-29, 31, 33-37, 39 and 41-42 are withdrawn in view of Applicant's amendments to the claims.

Terminal Disclaimer

6. The terminal disclaimer filed on April 27, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 10/739,176 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

7. Applicant's arguments filed on February 5, 2008 have been fully considered but they are not persuasive.
8. In re Applicant's remarks from Page 10 to Page 11, 2nd paragraph, regarding the rejection made under 35 U.S.C. §102(b) with regard to Claims 1, 19, 27 and 35, Applicant asserts that "*a) Sharma therefore generates an image power spectrum in order to detect the marking process used to create the image; b) Sharma nowhere discloses directly deducing the image marking process used from the spatial characteristics of the printed page*" as the independent claims 1, 19, 27 and 35 are now amended with and requiring the limitation of "*wherein determining*

spatial variations of the printed image includes at least one of determining local variation in input data, determining halftone dot periodicity, or determining frequency or noise characteristics; and wherein determining the image marking process does not require obtaining additional spatial information obtained through additional spectral channels, and does not require a power spectrum of the image data” . Applicant’s argument(s) are fully considered, however found to be not persuasive for at least the following reasons.

- a. With respect to argument a), Examiner agrees with Applicant that Sharma disclose the teachings of a method (but not limited to) of detecting the marking process utilizing the image spatial characteristics obtained from the input image, such as through generating of a image power spectrum and further analyzing the existence, position, and/or color of spectral peaks, the existence of absence of abnormally high energy at the high frequency in the power spectrum and etc. However, the disclosure of Sharma is not only limited to abovementioned method. See Sharma, i.e. column 6, lines 13-17, discloses "*...the marking process detection system 650 (Note: Referring to Figure 6) may detect the marking process using another known or later developed automatic detection technique that **does not** necessarily require information from the Image Spatial Analyzer 640 (Note: Image Spatial Analyzer 640 includes a Power Spectrum Generator 642).* In addition, i.e. column 5, lines 17-25, discloses "Image Spatial Analyzer 640" analyzes the scanned image data to determine at least one spatial characteristic (not limited to a power spectrum, instead a power spectrum is merely an example of the embodiments). Therefore, for at least the reasons above, the disclosure of Sharma is not limited to the method of merely utilizing a power spectrum.

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b. With respect to argument b), in continuation of disclosing the "another known or later developed automatic detection technique" for detecting the marking process as discussed above, Sharma further discloses one of the possible techniques, i.e. column 6, lines 27-38, discloses "*...when an image is scanned by the detector, the sensor cell reads a different color value from the other cells due to the extra coating applied to it. The color the sensor cell would have output without the extra coating is interpolated from the outputs of the cells neighboring the sensor cell... this color and the color actually detected by the sensor cell are then input to a controller, which determines at least one attribute of the scanned image, such as the marking process used to form the image...*", which reads on the added claim limitation of "...at least one of determining local variations in input, ..." required by the amended independent claims 1, 19, 27 and 35.

Therefore, for at least the reasons set forth above, the rejection made under 35 U.S.C. §102(b) over Sharma with regard to claims 1, 19, 27 and 35 is remained proper and therefore maintained.

9. In re Applicant's remarks from Page 11, 3rd paragraph to Page 12, 1st paragraph, regarding the rejection made under 35 U.S.C. §103(a) with regard to Claims 1-12, 14, 16, 18-21, 23, 25-29, 31, 33-37, 39 and 41-42, Applicant asserts that the prior arts of record have not rendered the instant independent claims 1, 19, 27 and 35 obvious "in similar fashion" to discussion relating to Sharma above. Applicant's argument(s) are fully considered, however, as the rejections of claims 1, 19, 27 and 35 are maintained for reasons stated above, the grounds of rejection for claims here are also maintained for at least the similar reasons since applicant has not pointed to further deficiencies of the rejection.

(The grounds of rejection and/or objection are maintained for at least the responses set forth above, reasons of record set forth previously, and also replicated and provided in below.)

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 1, 19, 27 and 35** are rejected under 35 U.S.C. 102(b) as being anticipated by **Sharma (U.S. Patent 6,353,675)**.

With regard to claim 1, the claim is drawn to a method of analyzing a printed image, comprising: scanning the printed image (*See Sharma, i.e. Column 5, lines 5-8*); determining spatial characteristics of the printed image (*i.e. Column 5, lines 17-19*); statistically analyzing the spatial characteristics of the printed image (*i.e. Column 5, lines 20-22*); determining spatial variations in the printed image based on the analyzed spatial characteristics and determining an analog tone or binary image marking process used to create the printed image based on the determined spatial variations in the printed image (*i.e. Column 5, lines 22-26*); wherein determining spatial variations of the printed image includes at least one of determining local variation in input data, determining halftone dot periodicity, or determining frequency or noise characteristics; and wherein determining the image marking process does not require obtaining additional spatial information obtained through additional spectral channels, and does not require a power spectrum of the image data (*i.e. column 6, lines 13-38; and see the discussion above in "Response to Arguments"*).

With regard to claim 19, the claim is drawn to a method of determining an image marking process used to create a printed image, comprising: scanning the printed image (*See Sharma, i.e. Column 5, lines 5-8*); determining spatial characteristics of the printed image (*i.e. Column 5, lines 17-19*); statistically analyzing the spatial characteristics of the printed image (*i.e. Column 5, lines 20-22*); determining local spatial variations in the printed image based on the analyzed spatial characteristics and determining the analog tone or binary image marking process used to create the printed image based on the determined local spatial variations in the printed image (*i.e. Column 5, lines 22-26* ; wherein determining spatial variations of the printed image includes at least one of determining local variation in input data, determining halftone dot periodicity, or determining frequency or noise characteristics; and wherein determining the image marking process does not require obtaining additional spatial information obtained through additional spectral channels, and does not require a power spectrum of the image data (*i.e. column 6, lines 13-38; and see the discussion above in "Response to Arguments"*).

With regard to claim 27, the claim is drawn to a machine-readable medium that provides instructions for determining an image marking process used to create a printed image, instructions, which when executed by a processor, cause the processor to perform operations (*See Sharma, i.e. Column 4, lines 18-29*) comprising: scanning the printed image (*i.e. Column 5, lines 5-8*); determining spatial characteristics of the printed image (*i.e. Column 5, lines 17-19*); statistically analyzing the spatial characteristics of the printed image; determining local spatial variations in the printed image based on the analyzed spatial characteristics and determining the analog tone or binary image marking process used to create the printed image based on the determined local spatial variations in the printed image (*i.e. Column 5, lines 22-26*); wherein

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determining spatial variations of the printed image includes at least one of determining local variation in input data, determining halftone dot periodicity, or determining frequency or noise characteristics; and wherein determining the image marking process does not require obtaining additional spatial information obtained through additional spectral channels, and does not require a power spectrum of the image data (*i.e. column 6, lines 13-38; and see the discussion above in "Response to Arguments"*).

With regard to claim 35, the claim is drawn to a media/image marking process identification system (*See Sharma, i.e. Claim 10, "a marking process determining system"*) for a printed page, comprising: a memory (*i.e. Column 3, line 32*); and a media/image marking process identification determination circuit, routine or application that identifies at least one of a media type for the printed page or an image marking process used to process the printed page (*i.e. Column 5, lines 17-19*), by processing the printed page to determine spatial characteristics of the printed image (*i.e. Column 5, lines 17-19*); statistically analyzing the spatial characteristics of the printed image; determining local spatial variations in the printed image based on the analyzed spatial characteristics; and determining the analog tone or binary image marking process used to create the printed image based on the determined local signal variations in the printed image. (*i.e. Column 5, lines 22-26*); wherein determining spatial variations of the printed image includes at least one of determining local variation in input data, determining halftone dot periodicity, or determining frequency or noise characteristics; and wherein determining the image marking process does not require obtaining additional spatial information obtained through additional spectral channels, and does not require a power spectrum of the image data (*i.e. column 6, lines 13-38; and see the discussion above in "Response to Arguments"*).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 1-12, 14, 16, 18-21, 23, 25-29, 31, 33-37, 39 and 41-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sharma (U.S. Patent No. 6,353,675)** as applied to claims 1, 19, 27 and 35 above, and further in view of **Wang (U.S. Patent No. 6,031,618)**.

With regard to claims 1-12, 14, 16 and 18, the claims are drawn to a method of analyzing image. Sharma discloses an invention relates to the method and apparatus that automatically identify the marking process (e.g. photographic, lithographic, ink-jet, line-on-line xerographic or rotated-screen xerographic) based on at least one spatial characteristic of the marked image (*See Sharma, i.e. Column 1, lines 41-48, Column 5, lines 5-32*). Sharma further discloses the analysis of “power spectrum” (or power spectrum density function/spectral density function, or the amount of energy at each spatial/light frequency) by observing the attributes, such as the *existence, position, and/or color of special peaks* in the power spectrum (*column 1, 54-57*); Sharma further discloses the limitations of: detection of the lithographic marking process (or offset printing process) by examining “the specific screen frequencies” (*Column 2, lines 42*); detection of the xerographic marking process by examining “the spectral peaks” and “absence of color in the spectral peaks” (*Column 2, lines 61-67*); detection of ink-jet marking process by examining “the rapid decrease in power and increase in frequency in the radial spatial frequency as results of “ the error-diffusion halftones and stochastic screens” being commonly used in ink-

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jet printer (*Column 3, lines 9-25*), additionally, Sharma discloses that “other known or later developed spatial analyzing techniques, such as wavelet decomposition or the like, may also be used by the image spatial analyzer to determine the spatial characteristics (*Column 6, lines 2-6*). Sharma also disclose the automatic aspect of marking process detection system, which does not require information from the image spatial analyzer (*Column 6, line 13-17*). Sharma further discloses the limitations of determination of the color of the sensor cell of the detection process to be interpolated in consideration of the neighboring cells (*as “local” examination aspect, at least until the further limitation on the claim language*) (*Column 6, lines 28-32*). (also see the discussion above in “Response to Arguments”).

Sharma does not explicitly disclose the limitations of determination of the marking process based on the statistical data (such as: Average, Mean, Min, Max, Minima, Maxima) collected from the scanned printed image; and the limitation of setting the color attributes based on the results of detecting the marking process.

However, Wang discloses the limitations of determination of the marking process based on the statistical data. Wang discloses the limitation of performing *statistical analysis*, which may include “*averaging the attribute values obtained from the scans, major rule, and the like*” (See Wang, *Column 5, lines 40-52*); Wang further discloses the limitation of correcting/setting/calibrating using the correction values that are determined based on the attributes detected (*Column 6, lines 8-16*).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Sharma to include the limitations of determination of the marking process based on the statistical data collected from the scanned printed image; and the limitation

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of *setting the color attributes* based on the results of detecting the marking process taught by Wang. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Sharma by the teachings of Wang to include the limitations of determination of the marking process *based on the statistical data collected from the scanned printed image*; and the limitation of *setting the color attributes* based on the results of detecting the marking process taught by Wang for “more accurate reproduction of the article” to be performed (See “Summary of Invention”, column 2, lines 55-56).

With regard to claims 19-21, 23 and 25-26, the claims are drawn to a method of determining an image marking process (used to create a printed image), comprising the identical limitations recited in claims 1, 5, 8, 14, 16 and 18 respectively, discussed above (*The claims are rejected under the same ground for at least the reasons set forth above. See the detailed discussion of the claims 1-12, 14, 16 and 18 above*).

With regard to claims 27-29, 31 and 33-34, the claims are drawn to a machine-readable medium that provides instructions for determining an image marking process used to create a printed image, instructions, which when executed by a processor, cause the processor to perform operations, comprising the identical limitations recited in claims 19-21, 23 and 25-26 respectively, discussed above. (*The claims are rejected under the same ground for at least the reasons set forth above. See the detailed discussion of the claims 1-12, 14, 16, 18-21, 23 and 25-26 above. Furthermore, Sharma, discloses the limitation of implementation of the system as computer software, See i.e. Column 4, lines 18-29*).

With regard to claims 35-37, 39 and 41-42, the claims are drawn to a media/image making process identification system for a printed page, comprising the identical limitations recited in claims 27-29, 31 and 33-34 respectively, discussed above. *(The claims are rejected under the same ground for at least the reasons set forth above. See the detailed discussion of the claims 1-12, 14, 16, 18-21, 23, 25-29, 31 and 33-34 above).*

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A. Sharma et al. (U.S. Pub. No. 2004/0264768, XEROX) disclose methods and systems used to associate color calibration profiles with scanned images based on identifying the marking process used for an image on a substrate using spatial characteristics and/or color of the image.
- B. Sharma et al. (U.S. Pub. No. 2004/0264769, XEROX) disclose methods and systems used to associate color calibration profiles with scanned images based on identifying the marking process used for an image on a substrate using spatial characteristics and/or color of image.
- C. Sharma et al. (U.S. Pub. No. 2004/0264770, XEROX) disclose methods and systems used to associate color calibration profiles with scanned images based on identifying the marking process used for an image on a substrate using spatial characteristics and/or color of the image.

- D. Sharma et al. (U.S. Pub. No. 2004/0264771, XEROX) disclose systems and methods for associating color profiles with a scanned input image using spatial attributes (characteristics).
- E. Sharma et al. (U.S. Patent No. 6,525,845, XEROX) disclose a methods and apparatus for modifying image data based on identification of marking process.
- F. Sharma (U.S. Patent No. 6,088,095, XEROX) discloses an invention relates to a model-based spectral calibration of color scanners.
- G. Bala et al. (U.S. Pub, No. 2003/0168582, U.S. Patent No. 6,750,442, XEROX) disclose an invention relates to a scanner scans a medium containing a color image, and the spectrophotometric sensor interact with the scanner to aid in the automatic selection of a scanner color correction corresponding to the medium being scanned.
- H. Bestmann (U.S. Patent No. 5,481,380) discloses a method and apparatus for calibration of color values.
- I. Reuman (U.S. Patent No. 6,069,982) discloses an invention relates to estimation of spatial noise characteristics associated with an image acquired from an unknown image acquisition device.
- J. Ueda et al. (U.S. Patent No. 6,008,812) disclose an image output characteristic setting device.
- K. Uekusa et al. (U.S. Patent No. 6,791,711) disclose an invention relates to image processing method for performing color processing in accordance with a plurality of image objects based on the analyzed relationships between the objects.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacky X. Zheng whose telephone number is (571) 270-1122. The examiner can *normally* be reached on Monday-Friday, 7:30 a.m.-5p.m., Alt. Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler M. Lamb can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacky X. Zheng/

Jacky X. Zheng
Patent Examiner
Art Unit: 2625
April 21, 2008

/Twyler L. Haskins/
Supervisory Patent Examiner, Art Unit 2625
4/24/08